CLAIMS

1. Process for the incorporation of a compound in the pores of a porous material chosen from microporous and mesoporous materials obtained by the sol-gel process, characterized in that it comprises the evaporation or the sublimation of this compound in a chamber comprising the said material.

2. Process according to Claim 1, characterized in that the temperature at which the compound is evaporated or sublimed is lower by at least 30°C and preferably by at least 50°C than its thermal decomposition temperature.

3. Process according to Claim 1 or Claim 2, characterized in that the temperature at which the compound is evaporated or sublimed is at most equal to 200°C.

4. Process according to any one of the preceding claims, characterized in that the compound is evaporated or sublimed under vacuum, in which case it comprises:

a) placing the chamber comprising the compound and the porous material under vacuum until the desired vacuum is obtained and, optionally,

b) heating the chamber to the chosen temperature, in order to evaporate or sublime the compound.

5. Process according to Claim 4, characterized in that the chamber comprising the compound and the porous material is cooled to a temperature of less than or equal to -40°C immediately before it is placed under vacuum.

6. Process according to any one of the preceding claims, characterized in that, in order to evaporate or sublime the compound at a temperature greater than ambient temperature, the chamber comprising the compound and the porous material is heated by immersion in an oil bath maintained at the chosen temperature in order to evaporate or sublime the compound.

7. Process according to any one of the preceding claims, characterized in that the porous material is thermally insulated from the wall and from the base of the chamber.

8. Process according to any one of the preceding claims, characterized in that it comprises one or more operations for monitoring the incorporation of the compound in the pores of the porous material.

9. Process according to Claim 8, characterized in that the monitoring is carried out by optical measurements.

10. Process according to any one of the preceding claims, characterized in that the porous material present in the chamber is in the form of a block or of one or more thin layers covering one and/or other of the faces of an inert substrate.

11. Process according to any one of the preceding claims, characterized in that the porous material is an inorganic or organic/inorganic hybrid material.

12. Process according to any one of the preceding claims, characterized in that the porous material is a micelle-templated silica (MTS) material.

13. Device (10, 40, 60) for the incorporation of a compound in the pores of a porous material chosen from microporous and mesoporous materials obtained by the sol-gel process, characterized in that it comprises:

- a chamber (11, 70) equipped with an opening,
- means for immobilizing at least one sample of porous material in the chamber,
- means for thermally insulating this sample from the wall and from the base of the chamber,
- means for hermetically sealing the chamber, and

- means for connecting the chamber to a vacuum-producing system.

14. Device according to Claim 13, characterized in that the means for immobilizing the sample of porous material also act as means for thermally insulating it from the wall and from the base of the chamber.

15. Device according to Claim 14, characterized in that the means for immobilizing the sample of porous material and for thermally insulating it from the wall and from the base of the chamber comprise a support (14) composed of an insulating material which is integrally attached to the base (13) of the chamber and which is equipped with means (15, 16) for holding the said sample in place.

16. Device according to any one of Claims 13 to 15, characterized in that the means for hermetically sealing the chamber also act as means for connecting it to the vacuum-producing system.

17. Device according to Claim 16, characterized in that the means for hermetically sealing the chamber and for connecting it to the vacuum-producing system comprise a shutting device (21) composed of a first pipe (23) which is equipped, at one of its ends, with means (22) for hermetically attaching it to the chamber and, at

the other of its ends, with a vacuum tap (25) and which carries, in a lateral position, a second pipe (26) terminated by means (27) for connecting it to the vacuum-producing system, the region for butt joining the second pipe on the first being such that the connection between these two pipes can be closed or opened by rotation of the vacuum tap.

18. Device according to any one of Claims 13 to 17, characterized in that the chamber (11) is composed of a transparent material.

19. Device according to Claim 18, characterized in that the chamber (11) is an optical cell with four faces.

20. Device (40) according to any one of Claims 13 to 19, characterized in that it additionally comprises means (50) for connecting it, in conjunction with at least one device as defined in any one of Claims 13 to 19, to a vacuum-producing system.

21. Device (60) according to Claim 13, characterized in that the chamber comprises a plurality of pipes (71) each capable of comprising at least one sample of porous material, each pipe being equipped with means for immobilizing the sample which it comprises and with means for thermally insulating it from the other pipes, from the base

(72) of the chamber and, if appropriate, from the wall of this chamber.

22. Device according to Claim 21, characterized in that the means for immobilizing the sample of porous material also act to thermally insulate it from the base (72) of the chamber.

23. Device according to Claim 22, characterized in that the means for immobilizing the sample of porous material and for thermally insulating it from the base (72) of the chamber comprise a support (14) composed of an insulating material which is integrally attached to the base (72) of the chamber and which is equipped with means (15, 16) for holding the said sample in place.

24. Device according to any one of Claims 20 to 23, characterized in that the means for thermally insulating the sample of porous material from the other pipes (71) and, if appropriate, from the wall of the chamber are composed of the wall (73) of the pipe (71) in which it is found, this wall being formed of an insulating material.

25. Device according to any one of Claims 19 to 24, characterized in that the means for hermetically sealing the chamber also act as means for connecting it to the vacuum-producing system.

26. Device according to Claim 25, characterized in that the means for hermetically sealing the chamber and for connecting it to the vacuum-producing system comprise a lid (80) capable of being hermetically attached to the chamber as well as a shutting device (21) composed of a first pipe (23) which is equipped, at one of its ends, with means (22) for hermetically attaching it to the lid and, at the other of its ends, with a vacuum tap (25) and which carries, in a lateral position, a second pipe (26) terminated by means (27) for connecting it to the vacuum-producing system, the region for butt joining the second pipe on the first being such that the connection between these two pipes can be opened or closed by rotation of the vacuum tap.

27. Use of a process according to any one of Claims 1 to 12 or of a device according to any one of Claims 13 to 26 for incorporating an organic compound in the form of monomers in the pores of a porous material chosen from microporous and mesoporous materials obtained by the sol-gel process.

28. Use according to Claim 27, characterized in that the porous material is a micelle-templated silica (MTS) material.

29. Use according to Claim 27 or Claim 28, characterized in that the porous material is

provided in the form of a block or of one or more thin layers covering one and/or other of the faces of an inert substrate.

30. Use according to any one of Claims 27 to 29, characterized in that the compound is a label or a ligand coupled to a label.

31. Use according to Claim 30, characterized in that the compound is chosen from fluorophores, luminophores and chromophores.

32. Use of a process according to any one of Claims 1 to 12 or of a device according to any one of Claims 13 to 26 in the manufacture of a chemical sensor or multisensor.

33. Use according to Claim 32, characterized in that the chemical sensor or multisensor is intended for the detection or the quantitative determination of atmospheric pollutants or of gases used in the microelectronics industry.